



BACTERIA IN YOUR WELL? FIRST STEP . . . DON'T PANIC!

The quality of well construction and/or of the water produced should never be judged solely upon the results of one test. A water quality report is a "snapshot" of conditions at the time the sample was collected. One test does not provide a complete picture of the well; only a series of "snapshots" can be interpreted to provide an accurate picture. More times than not, the presence of bacteria in a well can be overcome. **Epping Well & Pump Co., Inc.** has over 28 years experience in the well business. In addition to providing, servicing and installing water/sewage pumps, water tanks, water treatment and filters, water testing and lawn watering systems, Epping Well & Pump Co. will chlorinate your well for a nominal fee. Disinfection (chlorination) instructions follow to assist those homeowners preferring to chlorinate their wells themselves.

What is total coliform bacteria? The standard measure used to determine safe drinking water is the coliform test. The U.S. Environmental Protection Agency (EPA) requires the absence of total coliform and fecal coliform (including *E.coli*) bacteria in water for it to be considered safe to drink (potable). Total coliform organisms are plentiful in the soil. In addition, total coliform and fecal coliform (including *E.coli*) grow in the intestinal tract of mammals (warm-blooded animals) including humans. *E.coli* are a very specific subgroup within the coliform family and their presence indicates a strong likelihood of mammalian waste entering the water system.

Where does the bacteria come from? The most likely explanations for positive bacteria results are poor well construction, improper or insufficient chlorination of either new well construction or recent plumbing, pipe or pump replacement, and improper sample collection.

HOW TO DISINFECT A WELL

Is there anything I should do before I disinfect?

If your well is new, you should flush the well before you disinfect it, and certainly before you test the water again. In many ways, flushing a well is the best way to clean the well and stabilize its quality. In particular, concentrations of minerals such as iron and manganese can vary markedly between the time a well is first used, and after it has been in service for some time. We strongly recommend a well be flushed by turning on an outside faucet and running water to waste at a moderate flow for several days to a week (direct flow with a garden hose to prevent flooding.) Then follow the disinfection procedure outlined below.

Which disinfectant should I use? How much?

Wells are disinfected with products containing chlorine. The amount of chlorine product recommended below provides not only adequate chlorine to overcome the oxidation of minerals, if any, but also sufficient residual chlorine for disinfection.

A. For a dug well (shallow well) or drilled well of moderate depth (no more than 200 feet):

Disinfect dug or shallow wells with household liquid bleach (Clorox®). The recommended dose of 1¼ gallons of

bleach for every thousand gallons of water in your well translates into:¹

GUIDELINES FOR THE AMOUNT OF LIQUID CHLORINE: DUG WELL (shallow)	
<i>FOR WELL DIMENSIONS OF:</i>	<i>ADD LIQUID BLEACH:</i>
2 ft wide & 33 ft deep (max) OR 3 ft wide & 15 ft deep (max) OR 4 ft wide & 8 ft deep (max) OR Up to 200 ft drilled	1 gal <i>(Never Use Less Than 1 Gallon)</i>
3 ft wide & 16-30 ft deep (max) OR 4 ft wide & 9-16 ft deep (max)	2 gal
4 ft wide & 17-32 ft deep (max)	4 gal
If your dug (shallow) well has tested positive for the presence of <i>E.coli</i> bacteria use 2 - 4oz of swimming pool bleach (solid) <u>IN ADDITION TO</u> the household liquid bleach.	

B. For a drilled well deeper than 200 feet:

Disinfect a deep well using chlorine swimming pool tablets (calcium hypochlorite) rather than household bleach. If your well is deep, disinfection with liquid bleach may not

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¹ *Small Water System Operation and Maintenance, 3rd Ed., 1993, Chap. 5 Disinfection*



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be adequate. It is possible the chlorine solution will not reach the lower portion of the well and/or the resulting chlorine concentration in the water will not be sufficient to kill any bacteria present.

Using the guidelines in the table below, place tablets/pellets in a heavy bag and break with a hammer into marble-size pieces. (CAUTION: Use care handling this material. It is hazardous.) Pellets may be purchased at our office.

GUIDELINES FOR THE AMOUNT OF SOLID CHLORINE: DRILLED WELL	
FOR WELL DEPTH OF:	ADD SOLID CHLORINE PELLETS* WEIGHING:
200 ft	8 oz
300	12
400	16 (1 lb)
500	20

* Most tablets/pellets range between 65 % and 95 % available chlorine by weight. The recommended dose is 26 oz of pellets for every thousand gallons of water in your well (or 4 oz of tablets per 100 feet of well depth). This assumes 70 % chlorine tablets and a well casing diameter of 6" (nearly all are).

How do I disinfect my well? Remove the well cover. ▪ Pour the disinfectant into the well. ▪ If using chlorine tablets, allow tablets to remain undisturbed for several hours before proceeding. ▪ Connect a garden hose to an outside faucet, run the hose into the well, turn on the faucet and allow the chlorinated water to run down the sides of the well. ▪ Recirculate the chlorinated water back to the well for an hour or so. ▪ Remove the hose from the well. ▪ Reinstall the well cover. ▪ Run every cold water faucet (inside and outdoor) until the smell of chlorine is noticed in the water. ▪ Run all lines/appliances that use cold water, i.e. inside faucets, all bath fixtures, ice cube maker, dishwasher, washing machine, outside spigots, etc. until the smell of chlorine is noticed in water. ▪ Bypass the water softener now, if applicable, before continuing. ▪ Allow the entire system (including the house lines) to remain undisturbed for 12 hours or at least overnight. This allows sufficient contact time for the bactericidal action of the chlorine product to kill any bacteria present.

How do I remove the chlorine from my water? After the overnight disinfection period, flush the well by running the water through an outside faucet (direct flow away from vegetation as strong chlorine solution will kill on contact). Do NOT leave your water running unattended; you may run out of water. Use the water until you can not smell any chlorine in the house (this may take several days or more). At this time, be sure to thoroughly flush all lines/appliances that may have been disinfected earlier. When the water no longer smells of bleach, the water softener may be put back on-line (taken out of the bypass mode).

Can I use my water containing chlorine? During this period, you should NOT drink your water (drinking water may be purchased inexpensively at most supermarkets) but the water may be used at your discretion for washing, cooking, etc. The list below offers *suggestions* regarding household use of chlorinated well water and is not meant to be inclusive of every possible circumstance encountered in every home. If there is question in your mind regarding your water use, you should err on the side of caution:

WHEN IN DOUBT, DON'T!
 THINGS TO KEEP IN MIND
 DURING WELL DISINFECTION:

- i. AVOID eye contact if showering/bathing with chlorinated water.
- ii. Do NOT use ice cubes made from chlorinated water.
- iii. Do NOT give pets chlorinated drinking water or change fish tank water with chlorinated water.
- iv. Do NOT water plants with chlorinated water.
- v. Clothing may discolor during laundering (either by the action of the bleach or by the rust-colored particles formed in the presence of high levels of iron and bleach.)

How can I tell if the disinfection has been successful and if my water is safe to drink? After the smell of chlorine is no longer detected, we recommend using the water for at least another week to allow anything that may potentially contaminate the well the opportunity to do so. Once the well has been in use for a period of a week or longer, resubmit a bacteria sample to the laboratory for testing. Sterilized collection bottles and proper sampling instructions are available from our lab. Epping Well & Pump Co., Inc. has a NH Environmental Accredited Laboratory on premises in Epping. Please feel free to call us with any questions at 800-287-5299 or visit us at our Epping or Pittsfield locations.